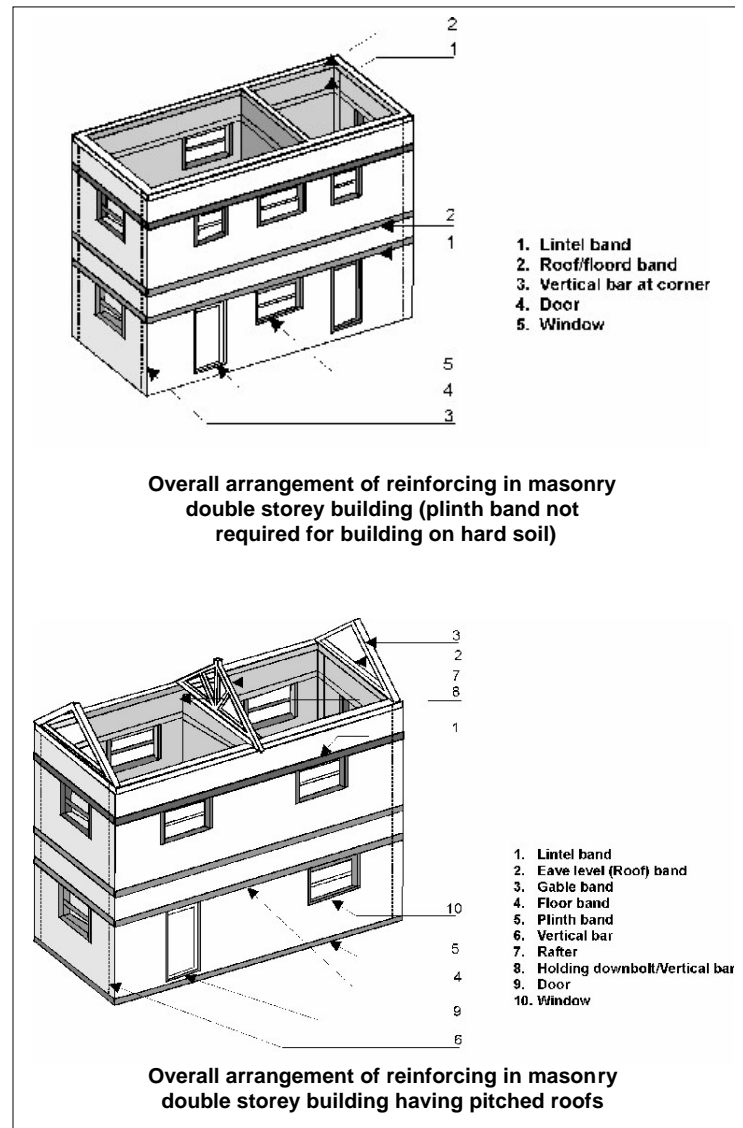


## SHORT GUIDE FOR HOME OWNERS FOR BUILDING HOUSES USING LOAD BEARING MASONRY CONSTRUCTION

If you are intending to build a single or double storied house without reinforced concrete frame consisting of columns & beams, but masonry walls, you need to do the following to make the building structurally safe against future earthquake hazards compliant with the Building Byelaws.

For **LOAD BEARING MASONRY STRUCTURE**, remember a few simple points that minimize the risk of damage in the event of an earthquake.

- i. Check with your structural engineer that he has followed the Indian Standard IS 4326. This standard covers earthquake resistant features.
- ii. Keep the building form as simple as possible. Avoid too many projections, twists and turns in the building.
- iii. Ensure that there is vertical corner reinforcement at the junction of walls.
- iv. Verify that there is a reinforced lintel band, a roof band and a plinth band.
- v. Make sure that all the windows and doors have the same lintel level.
- vi. Do not have more than 50% openings in any single wall and provide continuous reinforcement around openings larger than 600 mm X 600 mm in size.
- vii. Ensure that the openings for doors and windows are not at the corners of the walls but are placed towards the center.
- viii. The walls uniformly distributed in the plan of the building in both horizontal directions.



## REINFORCING ELEMENTS FOR EARTHQUAKE SAFETY

Seismic Zone	Number Of Storeys	Strengthening Arrangement
II	1-3	Cement mortar (1:6), Lintel Band, Roof & Gable Band, Bracing in Plan, Plinth Band.
III	1-2	Cement mortar(1:6), Lintel Band, Roof & Gable Band, Bracing in Plan, Plinth Band.
	3	Same as above + vertical steel at corners and at jambs of openings.
IV	1-2	Cement mortar (1:4), Lintel Band, Roof & Gable Band, Bracing in Plan, Plinth Band + vertical steel at corners & at jambs of openings.
	3	Same as above + dovel bars or band at window sill level.
V	1-3	Cement mortar (1:3), Lintel Band, Roof & Gable Band, Bracing in Plan, Plinth Band + Vertical steel at corners & at jambs of openings + dovel bars or band at window sill level

### HIRING PROFESSIONALS

To build the house, you will need to hire the services of professionals, who are registered with the Municipal Authority. They should be fully conversant with the Development Control Regulations & Building Byelaws.

- a) Architect
- b) Structural / Civil Engineer
- c) Geotechnical Soil Engineer.
- d) Construction Supervisor
- e) Contractor

### THEY NEED TO CHECK THE FOLLOWING

- The land is not prone to frequent flooding.
- The soil is not soft and is not liquefiable. (This could be a problem particularly in the river bed and coastal areas).
- There are no known earthquake faults in your land or very close to it.

### DOCUMENTS FOR APPROVAL OF BUILDING PLANS

After you have hired the professionals, you will need to get the following from them:

- Certificate of Undertaking by Architect.
- Certificate of Undertaking by Structural / Civil Engineer.
- Certificate of Undertaking by Construction Supervisor.
- Certificate of Undertaking for Hazard Safety requirements (to be signed jointly by Owner and the Structural Engineer)
- Structural Design Basis Report by the Structural / Civil Engineer
- Soil Investigation Certificate by the Geo-technical/Soil Engineer
- Certified copies of Building Plans
- No Objection Certificate of various authorities will be required before commencing construction. The Architect should provide guidance.